Technical Memorandum

KIMBERLY CLARK OF CANADA LTD.

TERRACE BAY, ONTARIO

AMBIENT AIR QUALITY SURVEY

JULY, 1985

ARB-80-86-AQM

March, 1986

Ontario
Ministry of the Environment

Dr. David Balsillie, Director
Air Resources Branch

Technical Memorandum
Kimberly Clark of Canada Ltd.
Terrace Bay, Ontario

Ambient Air Quality Survey
July, 1985

ARB-80-86-AQM

Prepared for
The Northwestern Region
Ministry of the Environment

by
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Air Quality and Meteorology Section
Air Resources Branch
Ministry of the Environment

March, 1986

INS3/4

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EXECUTIVE SUMMARY

Two mobile air monitoring units conducted an ambient air quality survey in the vicinity of the Kimberly Clark of Canada Ltd. kraft pulp and paper mill in Terrace Bay.

Concentrations of total reduced sulphur compounds off company property downwind of the plant were less than the 30 minute provisional guideline of 0.027 ppm TRS.

The total hydrocarbons loadings reported by the gas chromatograph for 5 discrete samples (on plant property) ranged between 168.9 ug/m^3 and 3783.2 ug/m^3. These loadings were mainly comprised of aromatic hydrocarbons, specifically, 1-isopropyl -4-methylbenzene (p-cymene). The p-cymene loadings range between 64.5 ug/m^3 and 2637.0 ug/m^3.

The most dominant chlorinated organic reported was trichloromethane (chloroform). These concentrations ranged between 5.2 ug/m^3 and 236.6 ug/m^3, well below the guideline for this contaminant (1500 ug/m^3).

1.0 INTRODUCTION

At the request of the Northwest Region, the Monitoring and Instrumentation Unit of the Air Resources Branch conducted ambient air quality surveys in various northern Ontario towns during the periods July 2 - July 31, 1985. One of these ambient air surveys was carried out in Terrace Bay, Ontario from July 24-July 26, 1985. The industry of interest was the pulp and paper mill operated by Kimberly Clark of Canada Ltd. The survey objectives were to determine ambient air concentrations of total reduced sulphur (TRS), total hydrocarbons (THC) and to identify the organic emissions from the Kimberly Clark plant, and effluent ditch. Two ambient air monitoring vehicles (MAMUs) were employed.

2.0 MAMUs and SURVEY STRATEGY

MAMUs #1 and #2 contain analyzers for monitoring carbon monoxide (CO), oxides of nitrogen (NO_x), methane (CH_4), and non-methane (TH-M) components of total hydrocarbons (THC), ozone (O_3), and total reduced sulphur (TRS) compounds, as well as a dual capillary gas chromatograph equipped with a cryocooled preconcentrator. MAMU #2 also contains an SO_2 analyzer.

Simultaneously with air sampling, meteorological conditions were also monitored including wind speed and direction, temperature, barometric pressure, dew point, and solar radiation.

The operational procedure was to calibrate the instruments each day (where feasible) and to locate the units downwind of the plant or downwind of the effluent ditch, either on plant property or where it crossed highway #17 in three locations. In some instances, a teflon hose was connected to the sampling probe of each MAMU and placed in close proximity to the effluent ditch.

While the TRS odour was definitely noticeable where the effluent canal crossed Hwy #17 at various points, the MAMU's were NOT able to monitor at these points because of lack of space for the units on the shoulder of the highway.

2.1 Instrumentation (TRS, THC, CO)

During this survey the TRS analyzer comprised a TRS to SO_2 converter (a Quartz furnace run @ 900°C) and a Monitor Labs Model #8850 Fluorescent SO_2 analyzer. This system was capable of measuring 90-100% of the TRS present as TRS. Hopefully, speciation of TRS to its individual components may be possible in future surveys. The hydrocarbon analyzer was an IPM dual flame ionization detector, capable of analyzing total hydrocarbons (THC), methane (CH_4), and non methane (TH-M). The CO analyzer was a gas filter correlation Thermo Electron Model #48.

3.0 RESULTS AND DISCUSSION

Table 1 lists the monitoring periods chronologically for MAMU #1 and includes precise locations and numbers to identify each period. Table 2 lists the monitoring periods chronologically for MAMU #2 and includes precise locations and numbers to identify each period. Figure 1 shows the monitoring locations in relation to the suspected sources, Kimberly Clark plumes from the stack and effluent ditch.

3.1 TRS and THC

Some TRS and THC results for MAMU #1 and MAMU #2 are displayed in Tables 1 and 2 respectively.

The effluent ditch area nearest to Kimberly Clark Ltd. (on plant property) was of interest because of the strong odours noticeable in that immediate area. The largest TRS and THC concentrations were measured when a teflon hose was attached to the sampling probe on the MAMU's and placed directly down to the surface of the effluent ditch. These TRS concentrations were still well over the 30-minute provisional guideline of 0.027 ppm when the MAMU #1 sampled downwind of the ditch without the teflon hose (still on plant property). When MAMU #2 did an ambient sample downwind of the plant recovery stack (but upwind of the effluent ditch) on plant property (B253), TRS was NOT detected.

The TRS concentrations dropped well below the 30 minute provisional guideline when MAMU #1 sampled downwind of the effluent ditch at Highway #17 (site 3), approximately 150 metres south of the ditch.

The ambient runs done overnight at the Ministry of Natural Resources (MNR) involved both MAMU #1 and MAMU #2. Although the peak (1 minute average) TRS concentration exceeded 0.030 on one occasion (A264), the 30 minute provisional guideline of 0.027 ppm TRS was not exceeded.

3.2 Gas Chromatograph

The GC results are displayed on pages 19-21 of this report. All GC data was acquired with MAMU's in close proximity to the effluent ditch, on plant property.

The total hydrocarbon (THC) loadings for the first three runs using the teflon hose were approximately ten times the loadings of the two runs using the normal sampling probe, downwind of the effluent ditch.

The THC loadings were mostly comprised of aromatic hydrocarbons. The dominant aromatic hydrocarbon was 1-isopropyl-4-methylbenzene (p-cymene). This is not surprising however, since terpenes are found naturally in wood. It should be noted however, that in our case, the p-cymene concentrations reported may be higher than the actual concentrations, since terpenes are reactive to our in-line Nafion dryer on the GC, with p-cymene being the largest product.

The most dominant chlorinated organic was trichloromethane (chloroform). The largest chloroform loading detected was 237 ug/m^3 (on plant property), well below the 30 minute provisional guideline for this contaminant (1500 ug/m^3).

4.0 CONCLUSIONS

1. Ambient air TRS concentrations downwind of the Kimberly Clark of Canada Ltd. pulp mill did not exceed the 30 minute provisional guideline of 0.027 ppm TRS.

2. The TRS concentrations measured from the effluent ditch on plant property far exceeded the 30 minute provisional guideline, but the TRS concentrations from the ditch at Hwy #17 were well below the 30 minute provisional guideline.

3. The GC results show that the majority of the total hydrocarbon loadings were aromatics, specifically p-cymene (1-isopropyl-4-methylbenzene). The dominant chlorinated organic reported was trichloromethane (chloroform).

TABLE 1: TERRACE BAY SURVEY 1985
MAXIMUM HALF-HOUR AVERAGES FOR MAMU #1
SOURCE: KIMBERLY CLARK OF CANADA LTD.

Site*	Location & Mon. Per. #	Time Period	Comments	Concentrations (ppm) TRS	THC	CO
2	Ditch Area (plant property) (A252)	July 25/85 10:30-11:23	Ambient Run (directly downwind of ditch)	0.136	5.31	1.5
2	Ditch Area (plant property) (A253)	July 25/85 11:39-12:14	Sample Probe connected to teflon hose placed directly down to effluent canal in ditch (TRS analyzer on 5 ppm range)	1.268	35.06	6.4
2	Ditch Area (plant property) (A254)	July 25/85 12:24-12:59	Same as above, but Teflon hose 'teed' from canal to MAMU #1 and MAMU #2	0.502	22.72	4.4
3	Gun Range & Hwy #17 (A255)	July 25/85 14:13-14:59	Ambient Run (downwind of effluent canal)	0.004	1.77	0.6
1	MNR office (A256)	July 25-26/85 15:58-08:50 23:09-09:05	Overnight Ambient Run (Maximum TRS at 08:15 hrs)	0.008	4.67	0.5

* See map on Figure 1

TABLE 1: TERRACE BAY SURVEY 1985 (Cont'd)
MAXIMUM HALF-HOUR AVERAGES FOR MAMU #1
SOURCE: KIMBERLY CLARK OF CANADA LTD.

Site*	Location & Mon. Per. #	Time Period	Comments	Concentrations (ppm) TRS	THC	CO
4	Terrace Bay Legion Parking Lot (A262)	July 26/85 10:44-11:44	Ambient Run	0.003	0.86	3.73
1	MNR office (A263)	July 26/85 11:59-14:40	Ambient Run	0.001	0.39	2.7
1	MNR office (A264)	July 26-27/85 15:58-08:50	Overnight Ambient Run (Maximum TRS at 00:30) maximum 1 minute average = 0.032 ppm TRS	0.026	2.81	0.6

* See map on Figure 1

TABLE 2: TERRACE BAY SURVEY 1985
MAXIMUM HALF-HOUR AVERAGES FOR MAMU #2
SOURCE: KIMBERLY CLARK OF CANADA LTD.

Site*	Location & Mon. Per. #	Time Period	Comments	Concentrations (ppm) TRS	THC	CO
2	Ditch Area (plant property) (B253)	July 25/85 11:44-12:14	Ambient Run (directly upwind of ditch)	ND	2.63	ND
2	Ditch Area (plant property) (B254)	July 25/85 12:22-12:57	Teflon hose 'teed' From effluent canal to MAMU #1 and MAMU #2	0.612	21.51	3.3
1	MNR office (B255)	July 25-26/85 23:07-09:07	Overnight Ambient Run (Maximum TRS 08:15 hrs)	0.012	2.28	0.7

* See map on Figure 1

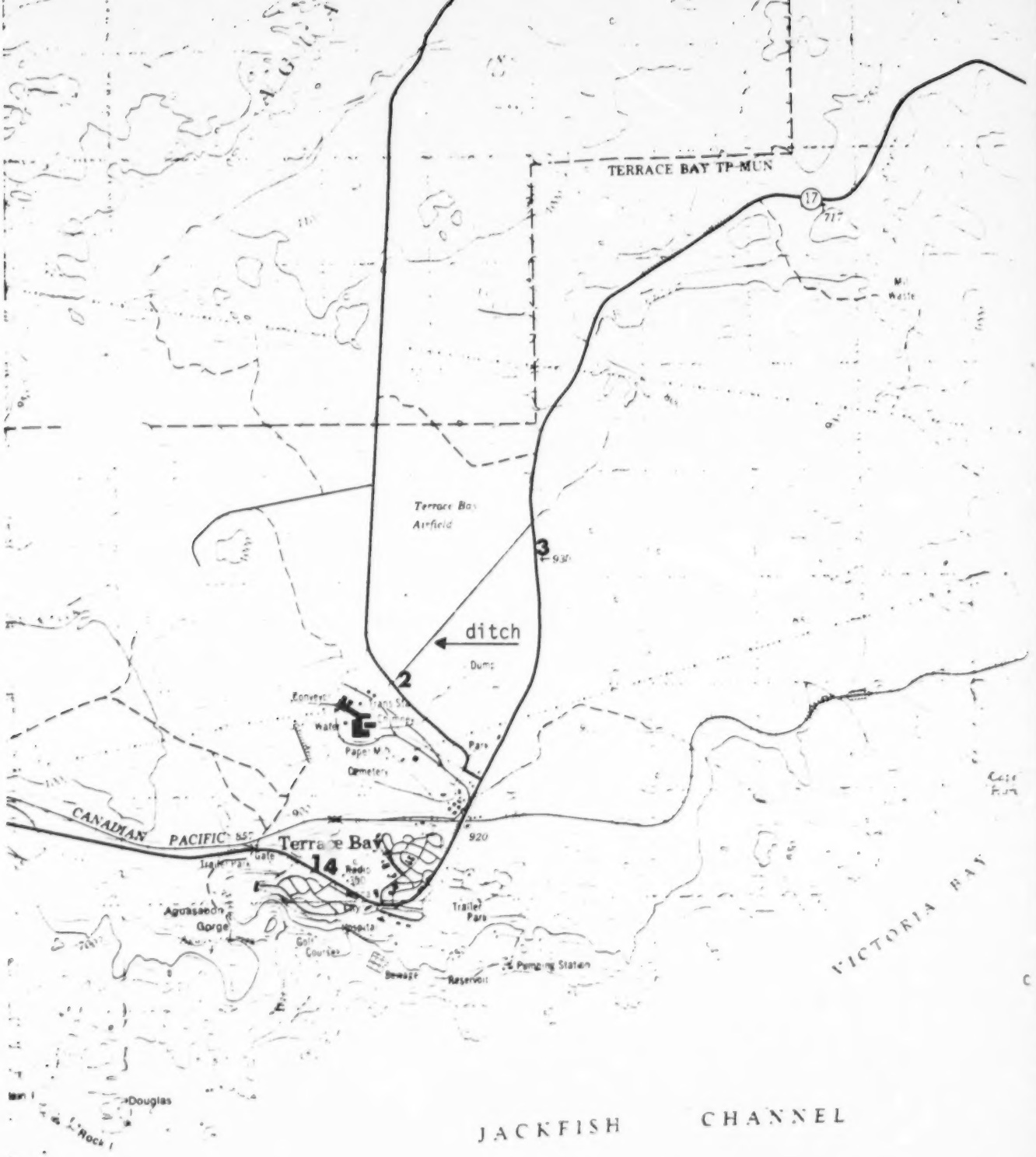
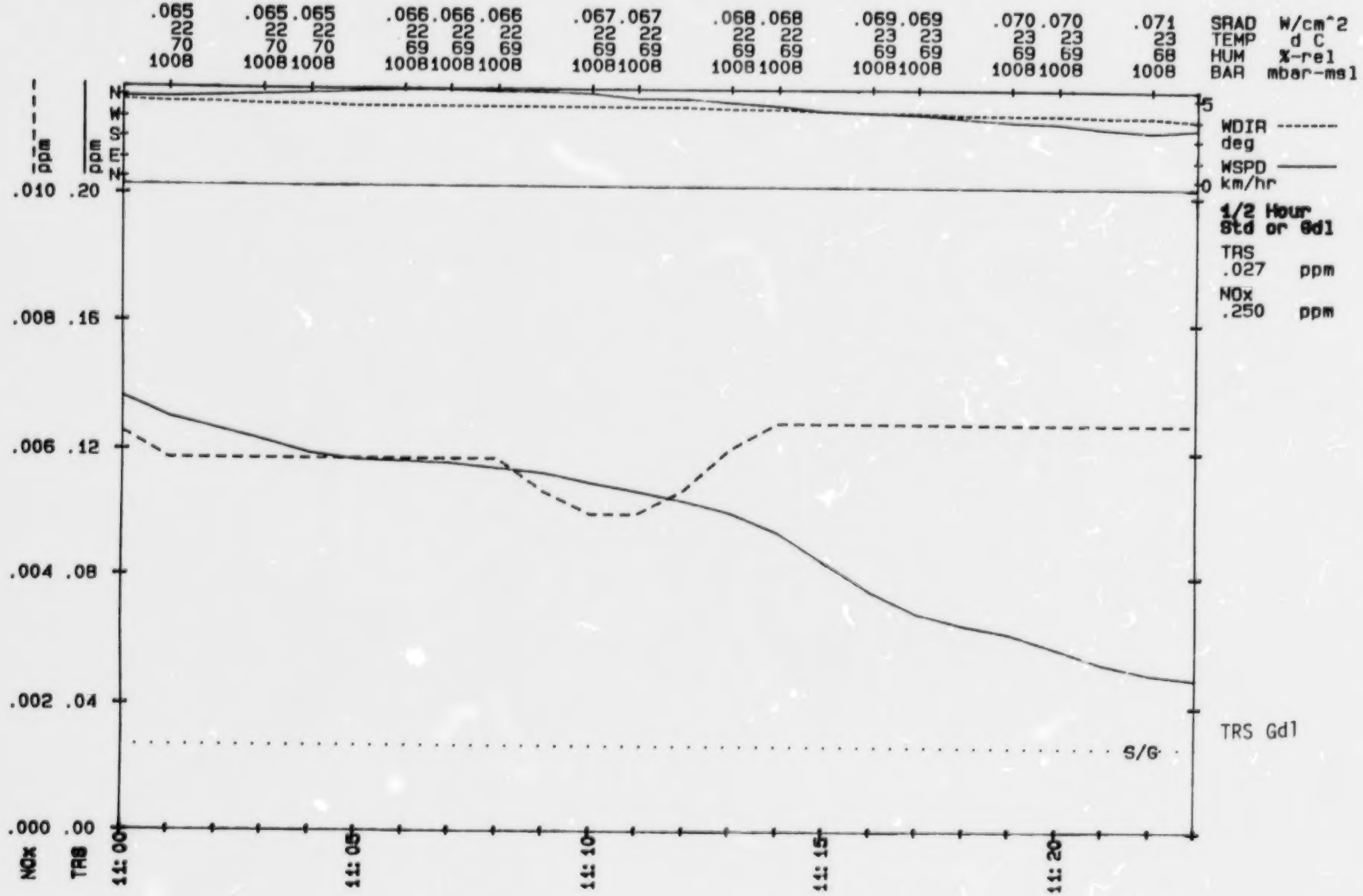


Figure 1. Monitoring sites near Terrace Bay, July 1985.

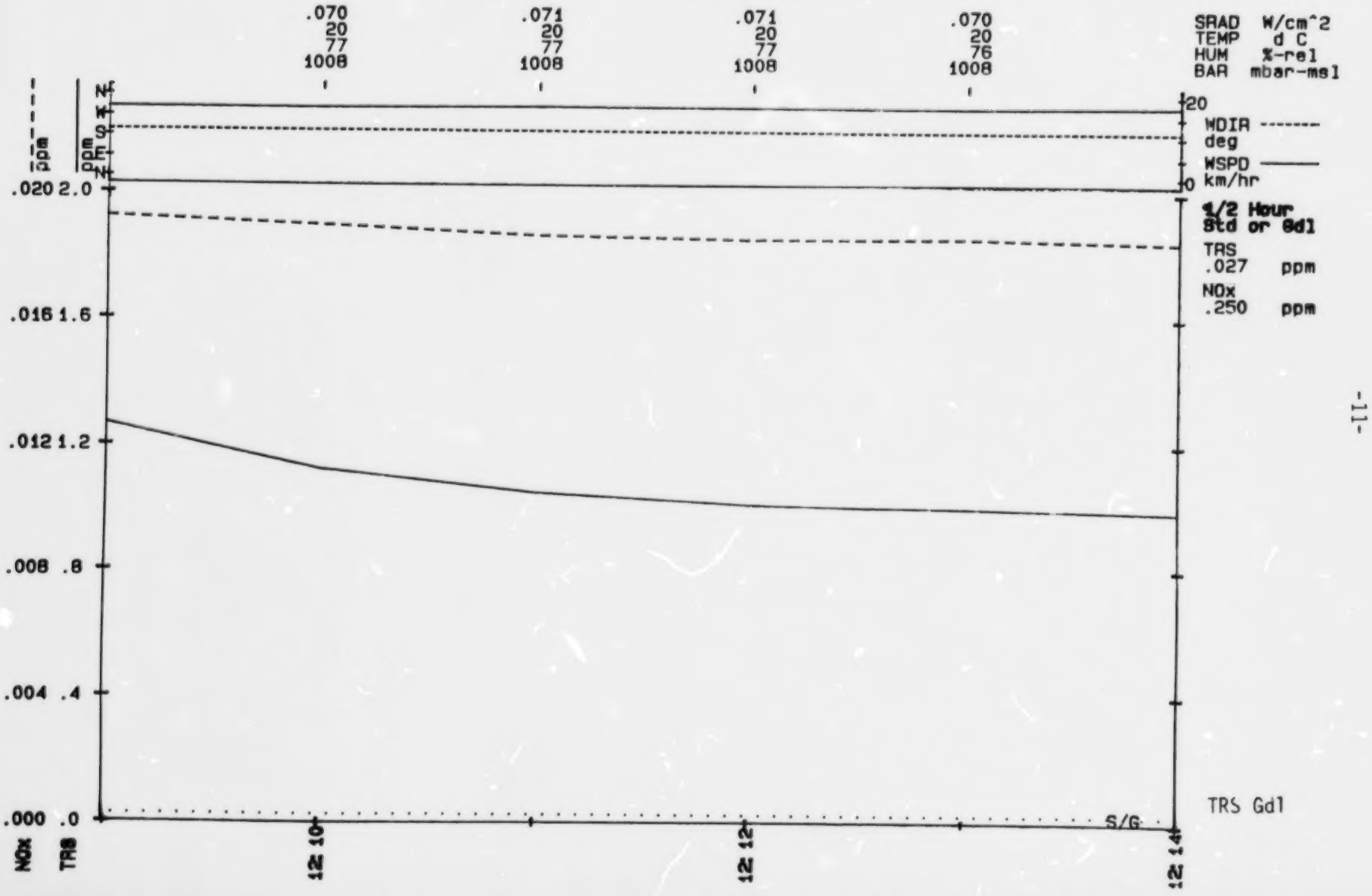
TERRACE_BAY_85: A252

Start: 85/07/25 10:30 Scan: 60 sec. Ave: 30.00 min.
Loc: 1st EXIT OF DITCH..PLANT PPRY

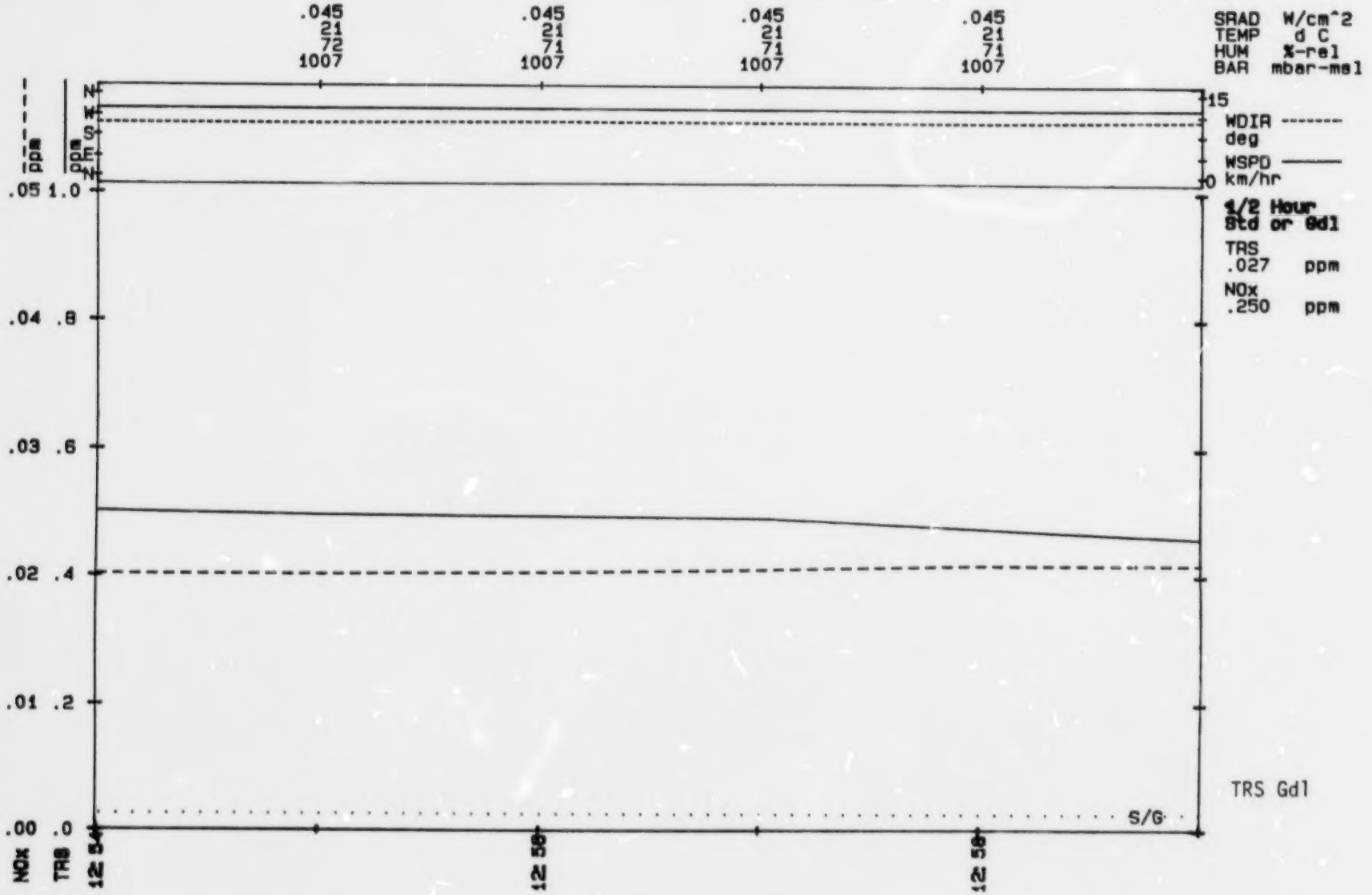


TERRACE_BAY_85: A253

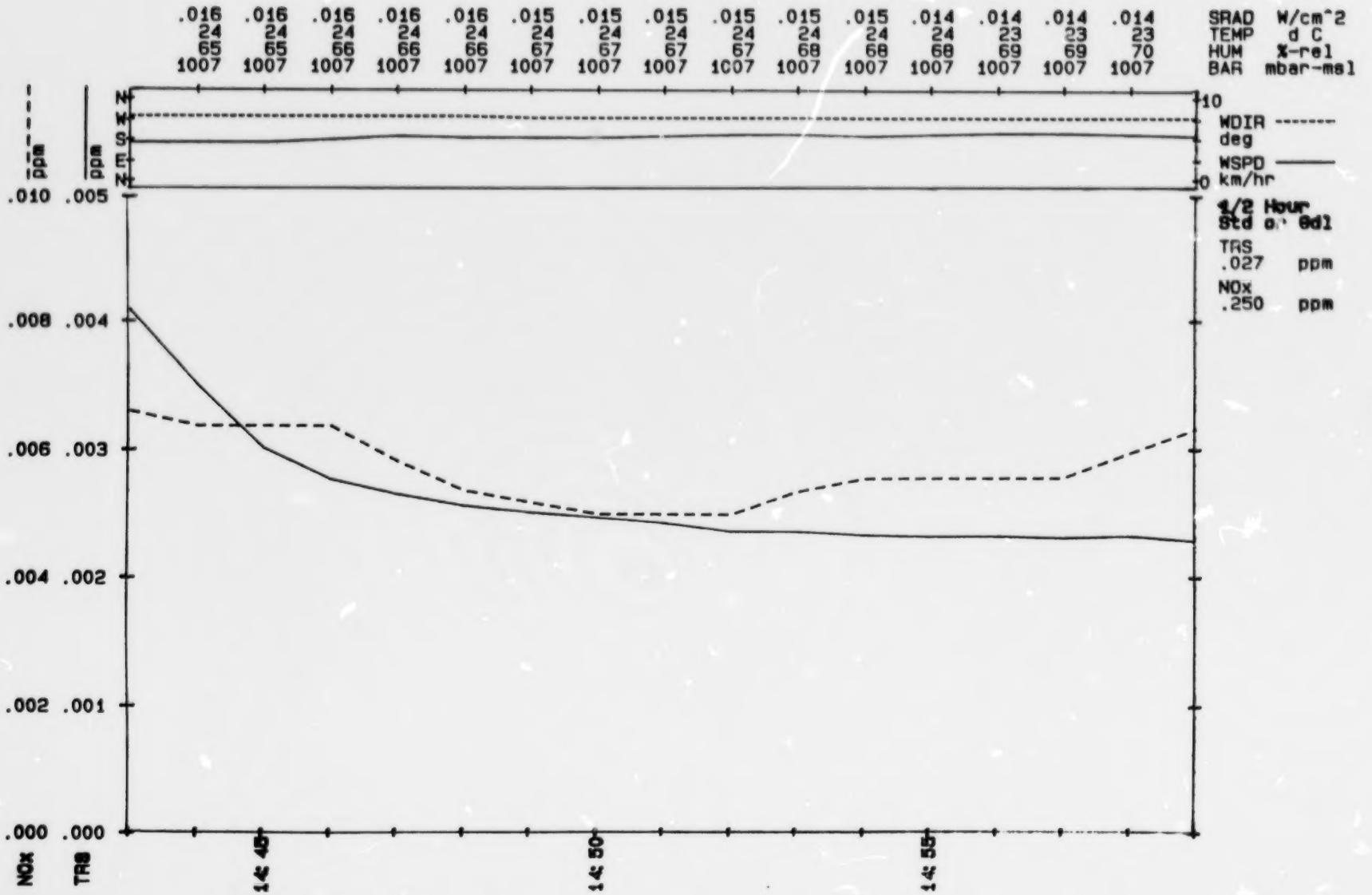
Start: 85/07/25 11:39 Scan: 60 sec. Ave: 30.00 min.
Loc: DITCH...PROBE..TRS CH .5 RANGE



TERRACE_BAY_85: A254

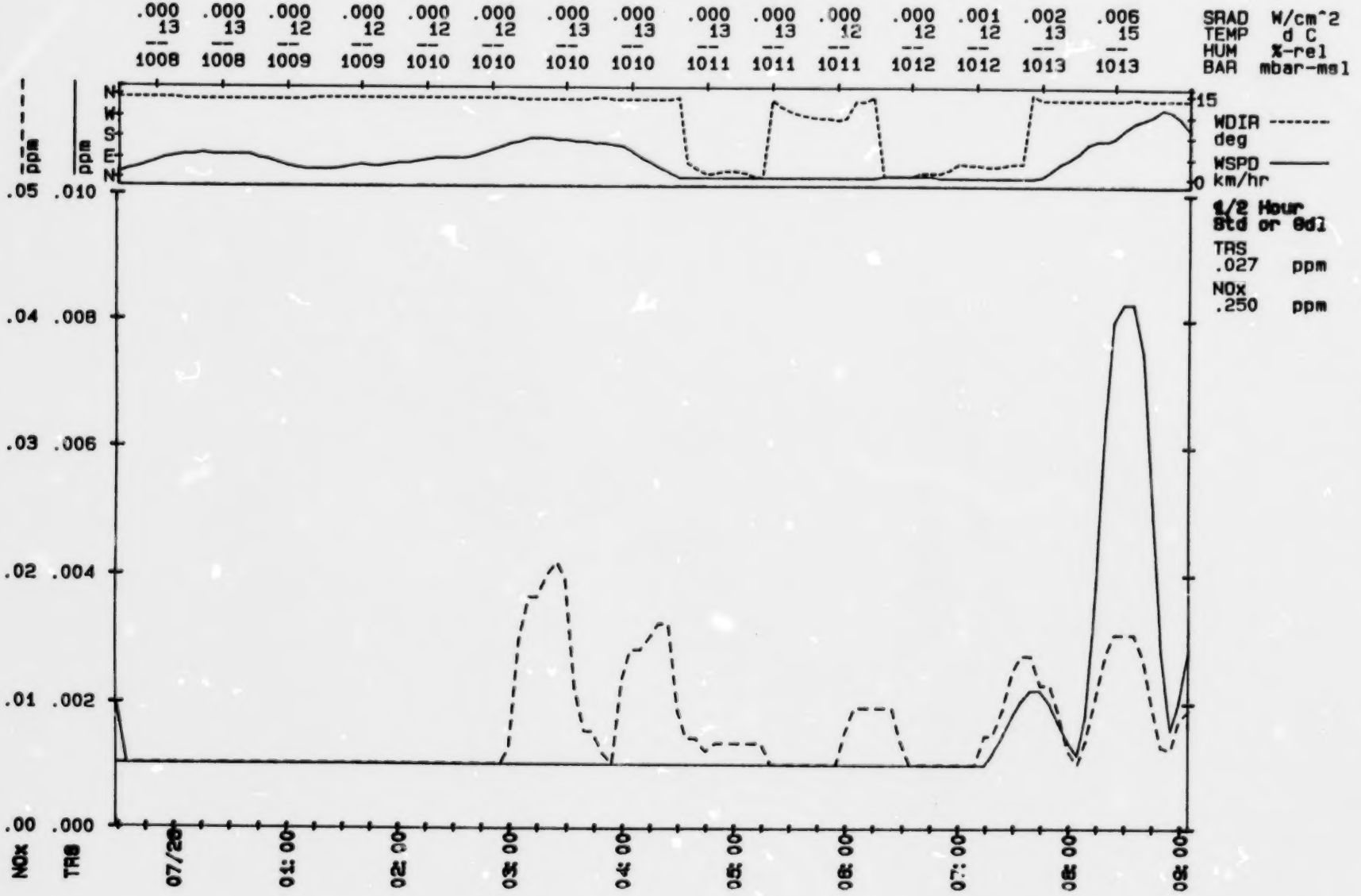
Start: 85/07/25 12:24 Scan: 60 sec. Ave: 30.00 min.
Loc: DITCH..CW #2..Y JOIN PROBE 2548

TERRACE_BAY_85: A255

Start: 85/07/25 14:13 Scan: 60 sec. Ave: 30.00 min.
Loc: GUN RANGE RD..SOUTH #17



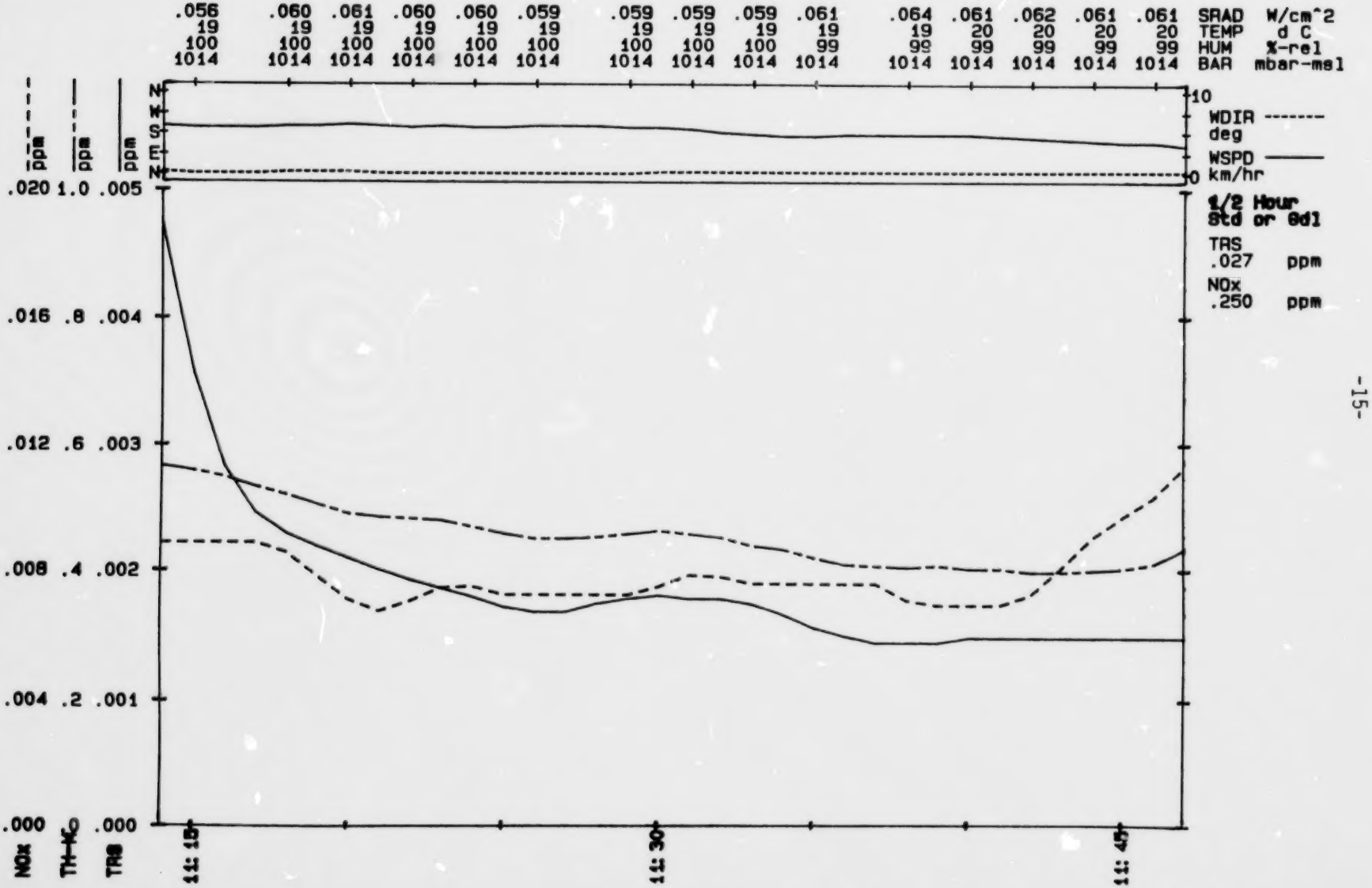
TERRACE_BAY_85: A256

Start: 85/07/25 22:59 Scan: 300 sec. Ave: 30.00 min.
Loc: MNR OFFICE OVERNIGHT



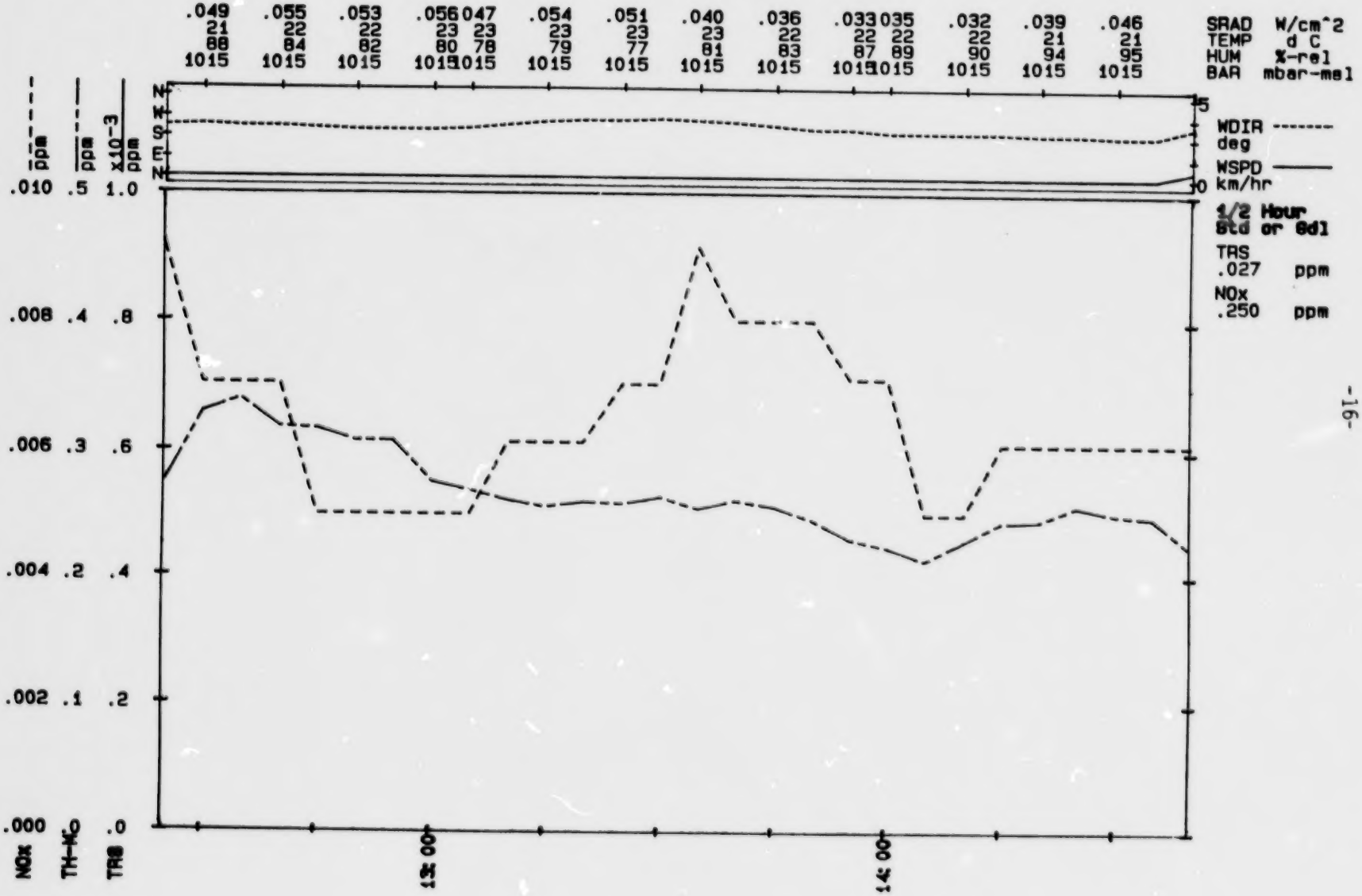
TERRACE_BAY_85: A262

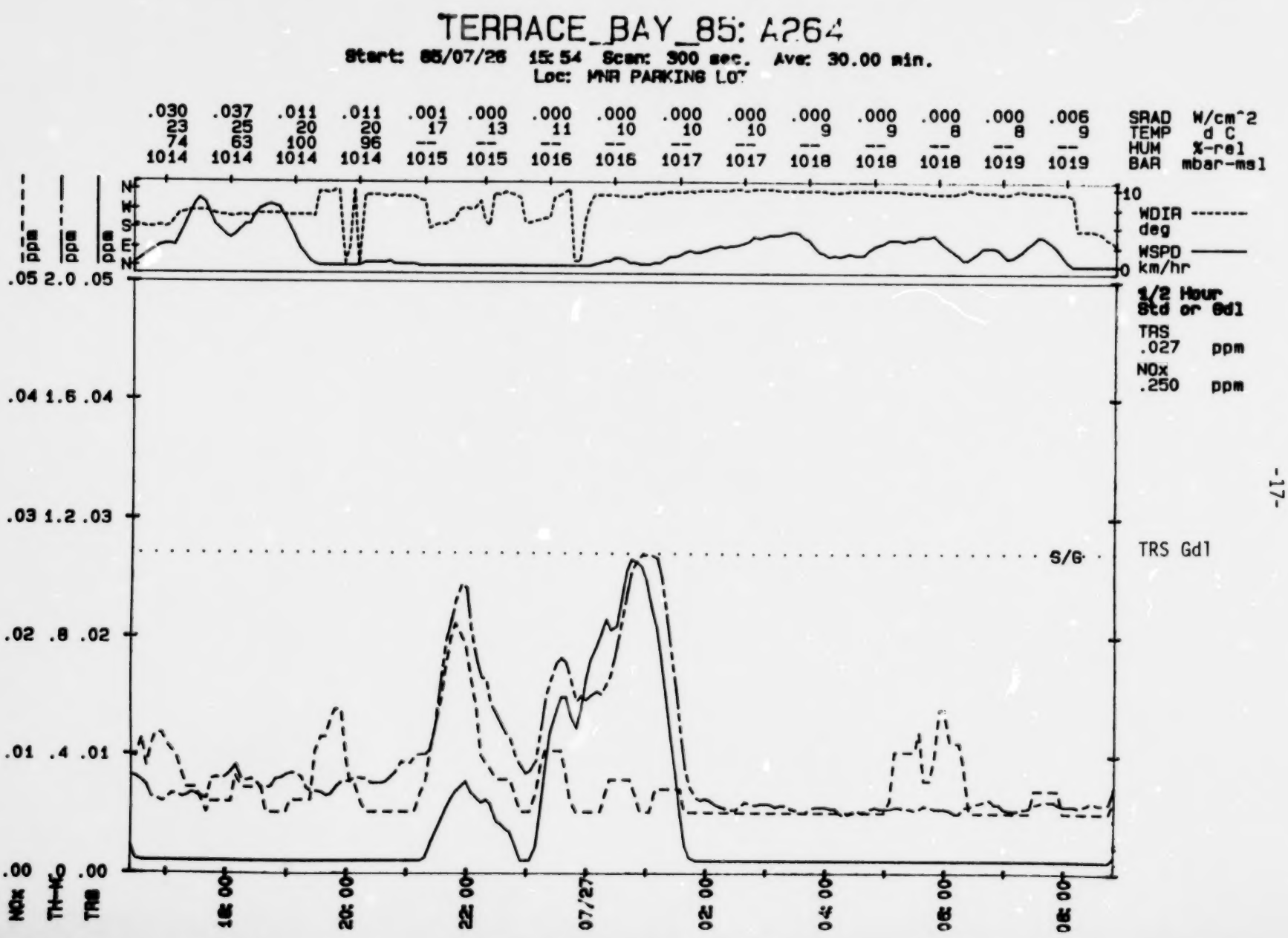
Start: 85/07/26 10:44 Scan: 60 sec. Ave: 30.00 min.
Loc: TERRACE BAY LEGION PARKING LOT



TERRACE_BAY_85: A263

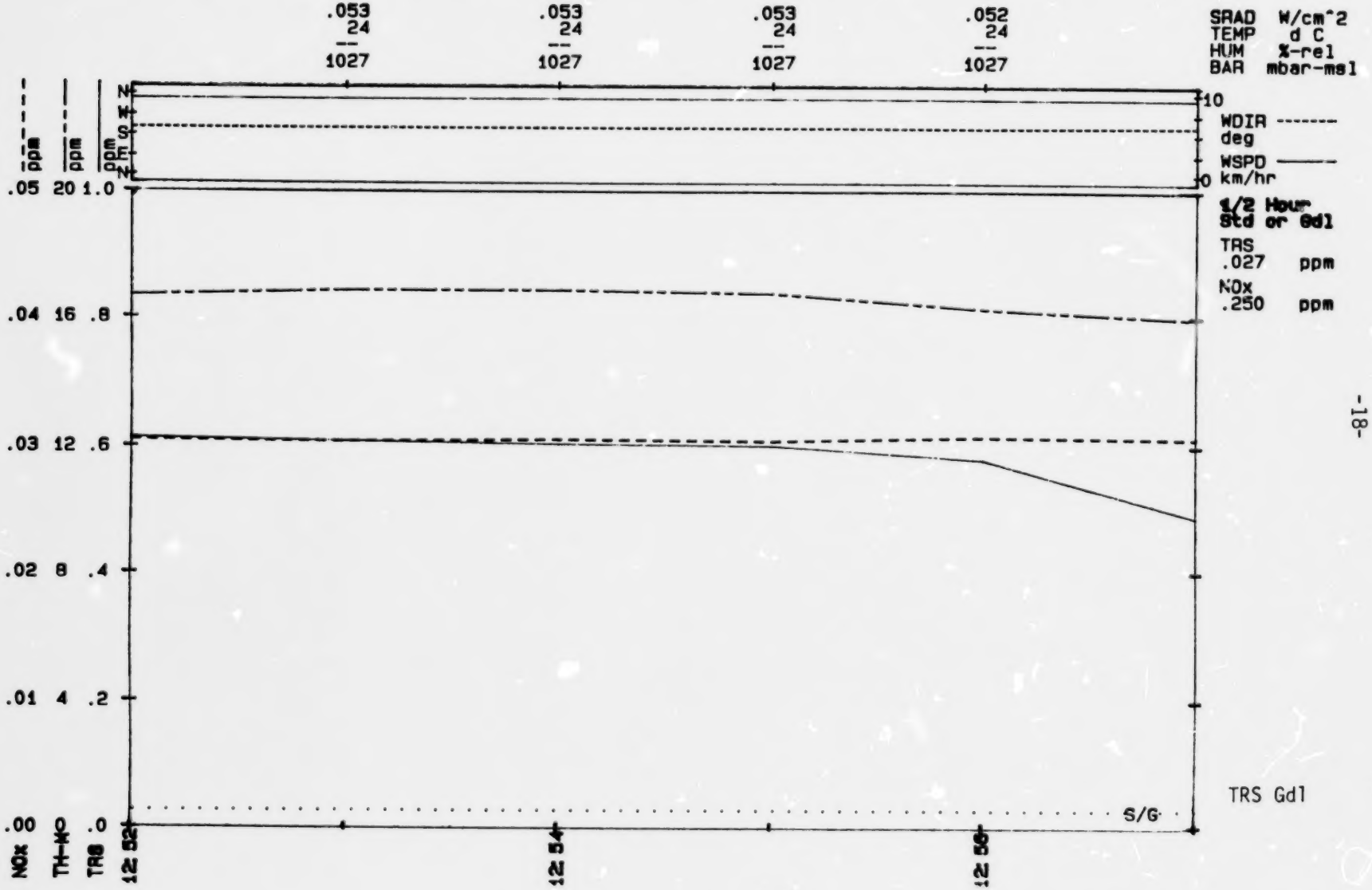
Start: 85/07/26 11:55 Scan: 300 sec. Ave: 30.00 min.
Loc: MNR PARKING LOT




TERRACE_BAY_85: A264
Start: 85/07/26 15:54 Scan: 300 sec. Ave: 30.00 min.
Loc: MNR PARKING LOT
.030 .037 .011 .011 .001 .000 .000 .000 .000 .000 .000 .000 .000 .000 .006
23 25 20 20 17 13 11 10 10 10 9 9 8 8 9
74 63 100 96 -- -- -- -- -- -- -- -- -- -- --
1014 1014 1014 1014 1015 1015 1016 1016 1017 1017 1018 1018 1018 1019 1019
SRAD W/cm^2
TEMP d C
HUM %-rel
BAR mbar-msl
N W S E N
10
0
WDIR
deg
WSPD
km/hr
1/2 Hour Std or Gdl
TRS .027 ppm
NOx .250 ppm
ppb ppb ppb
.05 2.0 .05
.04 1.6 .04
.03 1.2 .03
.02 .8 .02
.01 .4 .01
.00 0 .00
S/6
TRS Gdl
NOx TH-HC TRS
18:00
20:00
22:00
07/27
02:00
04:00
06:00
08:00

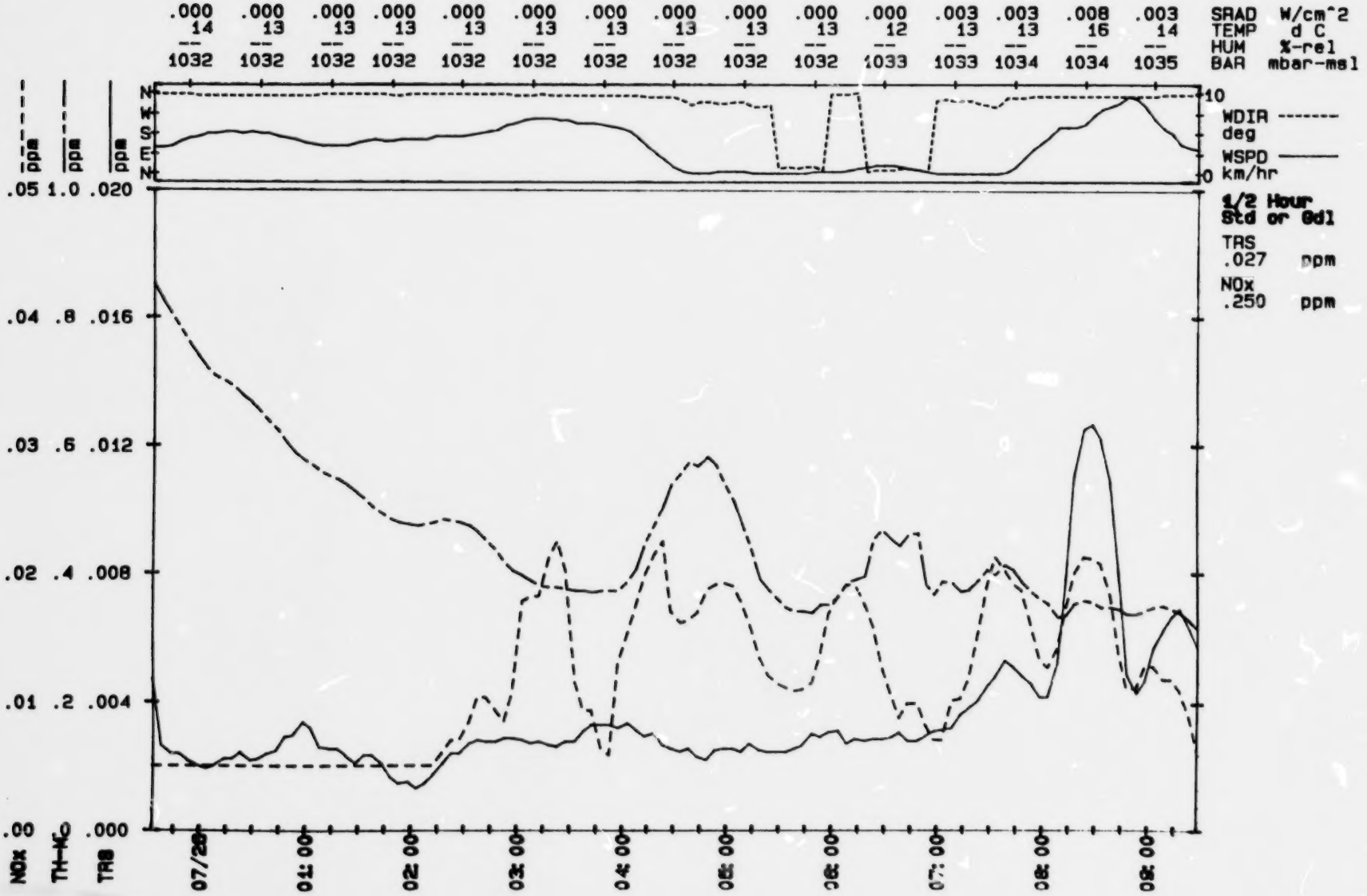
TERRACE_BAY_85: B254

Start: 85/07/25 12:22 Scan: 60 sec. Ave: 30.00 min.
Loc: DITCH AREA-USING HOSE-JOIN PROBE-A254....TRS



TERRACE_BAY_85: B255

Start: 85/07/25 23:09 Scan: 300 sec. Ave: 30.00 min.
Loc: MNR OFFICES (OVERNITE-SHORELINE) ....TRS



TERRACE BAY GC RESULTS JULY 1985 (UG/M3)

	UNIT	MAMU 1	MAMU 1	MAMU 1	MAMU 2	MAMU 1	MEAN	# SAMPLE	STD DEV	MINIMUM	MAXIMUM
	SAMPLE DURATION (MINUTES)	30	30	30	30	30					
	DATE	JUL 25	JUL 25	JUL 25	JUL 25	JUL 25					
	SAMPLE END TIME	10:58	11:34	12:14	12:47	12:57					
1	ETHANE						0.0	5.0	0.0	0.0	0.0
2	PROPANE			19.2	25.8	20.5	13.1	5.0	10.9	0.0	25.8
3	PROPADIENE						0.0	5.0	0.0	0.0	0.0
4	PROPYNE						0.0	5.0	0.0	0.0	0.0
5	CHLOROMETHANE						0.0	5.0	0.0	0.0	0.0
6	CYCLOPROPANE						0.0	5.0	0.0	0.0	0.0
7	2-METHYLPROPANE						0.0	5.0	0.0	0.0	0.0
8	CHLOROETHENE						0.0	5.0	0.0	0.0	0.0
9	1-BUTENE	1.1	1.5				0.5	5.0	0.7	0.0	1.5
10	1,3-BUTADIENE						0.0	5.0	0.0	0.0	0.0
11	BUTANE	17.7	9.1	14.9	26.3	19.4	17.5	5.0	5.7	9.1	26.3
12	1-BUTYNE						0.0	5.0	0.0	0.0	0.0
13	CHLOROETHANE						0.0	5.0	0.0	0.0	0.0
14	3-METHYL-1-BUTENE			0.7			0.1	5.0	0.3	0.0	0.7
15	2-METHYLBUTANE	5.0	9.0	18.3	33.8	21.4	17.5	5.0	10.1	5.0	33.8
16	1-PENTENE						0.0	5.0	0.0	0.0	0.0
17	PENTANE	3.7	6.4	16.7	31.8	18.5	15.4	5.0	10.0	3.7	31.8
18	2-METHYL-1,3-BUTADIENE	1.9		4.8		6.1	2.6	5.0	2.5	0.0	6.1
19	TRANS-2-PENTENE				2.7		0.5	5.0	1.1	0.0	2.7
20	CIS-2-PENTENE		1.6		4.6		1.2	5.0	1.8	0.0	4.6
21	DICHLOROMETHANE						0.0	5.0	0.0	0.0	0.0
22	2-METHYL-2-BUTENE				17.9		3.6	5.0	7.2	0.0	17.9
23	3-CHLOROPROPENE						0.0	5.0	0.0	0.0	0.0
24	2,2-DIMETHYLBUTANE			0.5		0.6	0.2	5.0	0.3	0.0	0.6
25	4-METHYL-1-PENTENE			0.3			0.1	5.0	0.1	0.0	0.3
26	3-METHYL-1-PENTENE			0.3			0.1	5.0	0.1	0.0	0.3
27	CYCLOPENTANE			0.7	2.4		0.6	5.0	0.9	0.0	2.4
28	2,3-DIMETHYLBUTANE		0.6		3.1		0.7	5.0	1.2	0.0	3.1
29	2-METHYLPENTANE		0.3		13.5		2.7	5.0	5.4	0.0	13.5
30	3-METHYLPENTANE		1.1		8.8		2.0	5.0	3.4	0.0	8.8
31	1-HEXENE			0.8		1.1	0.4	5.0	0.5	0.0	1.1
32	CIS-1,2-DICHLOROETHENE						0.0	5.0	0.0	0.0	0.0
33	2-CHLOROBUTANE						0.0	5.0	0.0	0.0	0.0
34	HEXANE	0.7	2.4	15.2	12.0	13.9	8.8	5.0	6.1	0.7	15.2
35	TRICHLOROMETHANE	47.8	5.2	60.9	236.6	45.2	79.1	5.0	80.9	5.2	236.6
36	TRANS-3-HEXENE						0.0	5.0	0.0	0.0	0.0
37	3-CHLORO-2-METHYLPROPENE						0.0	5.0	0.0	0.0	0.0
38	METHYLCYCLOPENTANE				6.7		1.3	5.0	2.7	0.0	6.7
39	1,2-DICHLOROETHANE						0.0	5.0	0.0	0.0	0.0
40	1,1,1-TRICHLOROETHANE						0.0	5.0	0.0	0.0	0.0
41	1-CHLOROBUTANE						0.0	5.0	0.0	0.0	0.0
42	BENZENE	6.4	5.0	23.2	24.7	9.4	13.7	5.0	8.5	5.0	24.7
43	TETRACHLOROMETHANE				98.6		19.7	5.0	39.4	0.0	98.6
44	CYCLOHEXANE				1.6		0.3	5.0	0.6	0.0	1.6
45	2-METHYLHEXANE			7.8	13.1	8.1	5.8	5.0	5.1	0.0	13.1
46	2,3-DIMETHYLPENTANE			1.4	13.9		3.1	5.0	5.4	0.0	13.9
47	CYCLOHEXENE						0.0	5.0	0.0	0.0	0.0
48	3-METHYLHEXANE				5.3		1.1	5.0	2.1	0.0	5.3
49	1,2-DICHLOROPROPANE	0.9	0.6				0.3	5.0	0.4	0.0	0.9
50	2,3-DICHLOROPROPENE						0.0	5.0	0.0	0.0	0.0

TEPPACE BAY GC RESULTS JULY 1985 (UG/M3)

	UNIT	MAMU 1	MAMU 1	MAMU 1	MAMU 2	MAMU 1	MEAN	# SAMPLE	STD DEV	MINIMUM	MAXIMUM
	SAMPLE DURATION (MINUTES)	30	30	30	30	30					
	DATE	JUL 25	JUL 25	JUL 25	JUL 25	JUL 25					
	SAMPLE END TIME	10:58	11:34	12:14	12:47	12:57					
51	TRICHLOROETHENE			1.7		1.8	0.7	5.0	0.8	0.0	1.8
52	2,2,4-TRIMETHYLPENTANE				10.6		2.1	5.0	4.2	0.0	10.6
53	1-HEPTENE			0.5			0.1	5.0	0.2	0.0	0.5
54	HEPTANE	1.0	0.8	2.7	4.6	2.8	2.4	5.0	1.4	0.8	4.6
55	1-CHLORO-3-METHYLBUTANE						0.0	5.0	0.0	0.0	0.0
56	TRANS-2-HEPTENE						0.0	5.0	0.0	0.0	0.0
57	METHYLCYCLOHEXANE			0.7	3.4	0.7	1.0	5.0	1.3	0.0	3.4
58	4-METHYLCYCLOHEXENE		0.5				0.1	5.0	0.2	0.0	0.5
59	2,5-DIMETHYLHEXANE	0.4	0.3		1.3		0.4	5.0	0.5	0.0	1.3
60	1-CHLOROPENTANE						0.0	5.0	0.0	0.0	0.0
61	1,1,2-TRICHLOROETHANE						0.0	5.0	0.0	0.0	0.0
62	TOLUENE	6.6	5.2	26.8	295.6	176.9	102.2	5.0	115.9	5.2	295.6
63	1,3-DICHLOROPROPANE						0.0	5.0	0.0	0.0	0.0
64	2-METHYLHEPTANE			0.4	2.9		0.6	5.0	1.1	0.0	2.9
65	4-METHYLHEPTANE						0.0	5.0	0.0	0.0	0.0
66	3-METHYLHEPTANE				3.0		0.6	5.0	1.2	0.0	3.0
67	1,2-DIBROMOETHANE						0.0	5.0	0.0	0.0	0.0
68	1-OCTENE			0.7			0.1	5.0	0.3	0.0	0.7
69	TRANS12DIMETHYLCYCLOHEXANE						0.0	5.0	0.0	0.0	0.0
70	TRANS-4-OCTENE						0.0	5.0	0.0	0.0	0.0
71	TETRACHLOROETHENE						0.0	5.0	0.0	0.0	0.0
72	OCTANE	0.5		0.4		0.4	0.2	5.0	0.2	0.0	0.5
73	2-METHYL-1-HEPTENE				2.5		0.5	5.0	1.0	0.0	2.5
74	2-OCTENE						0.0	5.0	0.0	0.0	0.0
75	CIS12DIMETHYLCYCLOHEXANE	0.5		0.9		1.1	0.5	5.0	0.5	0.0	1.1
76	CHLOROBENZENE						0.0	5.0	0.0	0.0	0.0
77	ETHYLCYCLOHEXANE			0.5			0.1	5.0	0.2	0.0	0.5
78	PROPYLCYCLOPENTANE			0.7			0.1	5.0	0.3	0.0	0.7
79	1-CHLOROHEXANE						0.0	5.0	0.0	0.0	0.0
80	ETHYLBENZENE				6.1		1.2	5.0	2.4	0.0	6.1
81	M-XYLENE	2.3	1.2	17.4	28.6	29.8	14.9	5.0	11.4	1.2	29.8
82	4-METHYLOCTANE		0.4				0.1	5.0	0.1	0.0	0.4
83	2-METHYLOCTANE						0.0	5.0	0.0	0.0	0.0
84	STYRENE				9.6		1.9	5.0	3.9	0.0	9.6
85	1,4-DICHLOROBUTANE						0.0	5.0	0.0	0.0	0.0
86	O-XYLENE	2.2	1.4	6.3	5.5	9.3	4.9	5.0	2.9	1.4	9.3
87	1,1,2,2-TETRACHLOROETHANE				9.3		1.9	5.0	3.7	0.0	9.3
88	1,2,3-TRICHLOROPROPANE				16.0		3.2	5.0	6.4	0.0	16.0
89	1-NONENE	0.6					0.1	5.0	0.2	0.0	0.6
90	NONANE		2.3	9.5	6.4	9.6	5.6	5.0	3.8	0.0	9.6
91	ISOPROPYLBENZENE					2.1	0.4	5.0	0.9	0.0	2.1
92	2-CHLOROTOLUENE						0.0	5.0	0.0	0.0	0.0
93	3-CHLOROTOLUENE		1.5	45.3	26.3		14.6	5.0	18.3	0.0	45.3
94	N-PROPYLBENZENE	0.6					0.1	5.0	0.2	0.0	0.6
95	4-CHLOROTOLUENE	0.9					0.2	5.0	0.4	0.0	0.9
96	3-ETHYLTOLUENE				95.7		19.1	5.0	38.3	0.0	95.7
97	4-ETHYLTOLUENE	1.2		6.5		76.2	16.8	5.0	29.8	0.0	76.2
98	1,3,5-TRIMETHYLBENZENE			25.9			5.2	5.0	10.4	0.0	25.9
99	2-ETHYLTOLUENE						0.0	5.0	0.0	0.0	0.0
100	tert-BUTYLBENZENE						0.0	5.0	0.0	0.0	0.0

TERRACE BAY GC RESULTS JULY 1985 (UG/M3)

	UNIT	MAMU 1	MAMU 1	MAMU 1	MAMU 2	MAMU 1	MEAN	# SAMPLE	STD DEV	MINIMUM	MAXIMUM
	SAMPLE DURATION (MINUTES)	30	30	30	30	30					
	DATE	JUL 25	JUL 25	JUL 25	JUL 25	JUL 25					
	SAMPLE END TIME	10:58	11:34	12:14	12:47	12:57					
101	1.2.4-TRIMETHYLBENZENE						0.0	5.0	0.0	0.0	0.0
102	1.3-DICHLOROBENZENE						0.0	5.0	0.0	0.0	0.0
103	1-DECENE						0.0	5.0	0.0	0.0	0.0
104	(CHLOROMETHYL)BENZENE						0.0	5.0	0.0	0.0	0.0
105	1.5-DICHLOROPENTANE			19.5			3.9	5.0	7.8	0.0	19.5
106	DECANE	0.5	2.2	19.0		21.9	8.7	5.0	9.6	0.0	21.9
107	SEC-BUTYLBENZENE						0.0	5.0	0.0	0.0	0.0
108	3-(CHLOROMETHYL)HEPTANE						0.0	5.0	0.0	0.0	0.0
109	1.2.3-TRIMETHYLBENZENE						0.0	5.0	0.0	0.0	0.0
110	1ISOPROPYL4METHYLBENZENE	64.5	252.8	2637.0	2607.0	2505.0	1613.3	5.0	1190.0	64.5	2637.0
111	1.2-DICHLOROBENZENE		1.2			45.9	9.4	5.0	18.2	0.0	45.9
112	INDAN		0.5			20.4	4.2	5.0	8.1	0.0	20.4
113	N-BUTYLCYCLOHEXANE				9.3		1.9	5.0	3.7	0.0	9.3
114	1.3-DIETHYLBENZENE				4.8		1.0	5.0	1.9	0.0	4.8
115	1.4-DIETHYLBENZENE			2.4			0.5	5.0	1.0	0.0	2.4
116	N-BUTYLBENZENE			2.1		0.8	0.6	5.0	0.8	0.0	2.1
117	1.2-DIETHYLBENZENE				3.6		0.7	5.0	1.4	0.0	3.6
118	UNDECANE	0.9	3.1	12.2		12.0	5.6	5.0	5.3	0.0	12.2
119	DECAHYDRONAPTHALENE				36.0		7.2	5.0	14.4	0.0	36.0
120	1235-TETRAMETHYLBENZENE			4.8	10.7		3.1	5.0	4.2	0.0	10.7
121	1234-TETRAMETHYLBENZENE						0.0	5.0	0.0	0.0	0.0
122	1234-TETRAHYDRONAPTHALENE			3.2			0.6	5.0	1.3	0.0	3.2
123	DIISOPROPYLBENZENE						0.0	5.0	0.0	0.0	0.0
124	DODECANE	1.3	1.1	18.6	6.4	15.2	8.5	5.0	7.2	1.1	18.6
	Total Compounds Identified	20.0	24.0	42.0	45.0	29.0	32.0	5.0	9.9	20.0	45.0
	Total # of Peaks	95.0	92.0	195.0	131.0	161.0	134.8	5.0	39.3	92.0	195.0
	Total Area of Peaks	9627.7	18516.5	174714.8	87312.1	121668.3	82367.9	5.0	62394.0	9627.7	174714.8
	Area of Identified Peaks	3937.5	14895.9	68296.0	57373.7	82172.1	45335.0	5.0	30559.5	3937.5	82172.1
	Area % Identified Peaks	40.9	80.4	39.1	65.7	67.5	58.7	5.0	16.1	39.1	80.4
	Total hydrocarbons ug/m3:	168.9	317.1	3050.9	3783.2	3095.9	2083.2	5.0	1525.5	168.9	3783.2
	Alkanes ug/m3	31.1	38.9	156.1	225.1	163.7	123.0	5.0	75.8	31.1	225.1
	Cycloalkanes ug/m3	0.5	0.0	3.5	23.4	1.8	5.8	5.0	8.9	0.0	23.4
	Alkenes ug/m3	3.9	3.2	6.1	25.2	7.6	9.6	5.0	8.0	3.2	25.2
	Cycloalkenes ug/m3	0.0	0.5	0.0	0.0	0.0	0.1	5.0	0.2	0.0	0.5
	Alkynes ug/m3	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0
	Aromatics ug/m3	83.7	266.1	2755.5	3122.8	2829.9	1811.6	5.0	1343.2	83.7	3122.8
	Chlorinated alkanes ug/m3	48.7	5.7	80.4	360.4	45.2	108.1	5.0	128.4	5.7	360.4
	Chlorinated alkenes ug/m3	0.0	0.0	1.7	0.0	1.8	0.7	5.0	0.8	0.0	1.8
	Chlorinated aromatics ug/m3	0.9	2.7	45.3	26.3	45.9	24.2	5.0	19.6	0.9	45.9
	Toluene:Ethylbenzene				48.7						
	Benzene:Ethylbenzene	0.0	0.0	0.0	0.0	0.0					
	Xylenes:Ethylbenzene		0.0								
	Ethylbenzene:Ethylbenzene										